Open-economy macroeconomics

EC 103–02

Marcio Santetti

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Motivation

Housekeeping

Required readings:

- Case, Fair, & Oster, ch. 20
    - See *Extra Readings* module on `theSpring`.
- `What Forces Drive International Trade, Finance, and the External Deficit? (Peterson Institute for International Economics)`

Aggregate expenditures & the foreign sector

Aggregate expenditures & the foreign sector

To complete our analysis of **output determination**, we have *one* (or *two*) pieces left:

$$Output\ (Y) \equiv Aggregate\ Expenditures\ (AE)$$

$$AE = C + I + G + \boldsymbol{(X - M)}$$

where $(X - M)$ is the **trade balance** (*aka* **net exports**), the difference between exports (X) and imports (M).

Aggregate expenditures & the foreign sector

In previous weeks, we saw that an increase in **aggregate planned investment** is capable of increasing output *more than proportionally*.

- Through the **multiplier effect**:

$$multiplier = 1/MPS \text{ or } 1/(1 - MPC)$$

Also, in the *absence* of new private investment, the **government** can generate these multiplier effects in **3** ways:

- Government spending multiplier: $1/MPS$ or $1/(1 - MPC)$;
- Tax multiplier: $-(MPC/MPS)$;
- Balanced-budget multiplier: 1

Aggregate expenditures & the foreign sector

When the **foreign sector** is included, we bring:

- The goods and services it **exports** to the rest of the world;
- The goods and services it **imports** from the rest of the world.

Then, for the time being, we assume:

- *Exports* (X) are **not** affected by the state of the local economy;
- When the local country's economy improves, its *Imports* (M) rise:

$$M = mY$$

where m $(m > 0)$ is the country's **marginal propensity to import** (MPM).

Aggregate expenditures & the foreign sector

Now that our economy does business with the *rest of the world*, we may **improve** the example from previous weeks:

- Aggregate consumption: $C = 150 + 0.8Y_d$;
- Aggregate planned investment: $I = \$150$;
- Government expenditures: $G = \$100$;
- Taxes on consumption: $T = \$100$;
- Exports: $X = \$500$;
- Imports: $M = 0.3Y$

(a) What is the **equilibrium** level of output in this economy?

(b) Suppose the government wants to *boost* GDP by \$260. By how much should it increase its expenditures, without changing taxes?

Aggregate expenditures & the foreign sector

The **open-economy multiplier** is given by

$$\text{Open-economy multiplier} = \frac{1}{1 - \text{MPC} - \text{MPM}}$$

where *(MPC - MPM)* is the *marginal propensity to consume* **domestic goods and services**.

Is the open-economy multiplier *smaller* or *larger* than the (closed-economy) multiplier?

Aggregate expenditures & the foreign sector

In J.M. Keynes's (1936, ch. 10) words:

> *"In an open system with foreign-trade relations, some part of the multiplier of the increased investment will accrue to the benefit of employment in foreign countries, since a proportion of the increased consumption will diminish our own country's favourable foreign balance; so that, if we consider only the effect on domestic employment as distinct from world employment, we must diminish the full figure of the multiplier. On the other hand our own country may recover a portion of this leakage through favourable repercussions due to the action of the multiplier in the foreign country in increasing its economic activity."*

Therefore, when **government spending** (or **investment**) increases and income and consumption rise, some of the extra consumption spending that results is on *foreign products* and not on *domestically produced* goods and services.

Savings = Investment re-revisited

Savings = *Investment* re-revisited

In a ***closed*** economy context, we had

$$S + T = I + G$$

Meaning that any new **injection** (G or I) must come out of **leakages**, i.e., resources that have not been consumed (S or T).

In an ***open*** economy, *Imports (M)* are another source of **leakages** of domestic income.

And *Exports (X)*, on the other hand, are new **injections**.

Savings = Investment re-revisited

We can thus **rewrite** the previous condition as

$$S + T + M = G + I + X$$

Rearranging,

$$(S - I) = (X - M) + (G - T)$$

- If $(X - M) < 0$, the country has a **trade deficit**.
- If $(G - T) > 0$, the country has a **budget deficit**.

When both happen simultaneously, the country experiences **twin deficits**.[1]

[1] The term *"twin deficits"* was coined by Martin Feldstein (1939—2019).

Savings = Investment re-revisited

`Twin deficits in the United States?`

Savings = Investment re-revisited

Another way of looking at the previous relationship is:

$$(S - I) = (X - M) + (G - T)$$

$$I = S + (M - X) + (T - G)$$

where S are **private** savings; $(M - X)$ are **foreign** savings; and $(T - G)$ are **public** savings.

This implies that any private investment has **three** sources of *financing* in an open economy:

- *Private* debt;
- *Budget* deficits;
- *Trade balance* deficits.

Savings = Investment re-revisited

From our example, **after** the increase in government spending, does the

$$(S - I) = (X - M) + (G - T)$$

relationship **hold**?

Also, how was private investment **financed**?

Trade barriers

Trade barriers

Albeit expanding the possibilities for growth and trade, doing business with the rest of the world may face some **barriers**.

Some of the most common are:

- Trade **tariffs**;
- Export **subsidies**;
- **Dumping**;
- Import **quotas**.

Trade barriers

Trade **tariffs** are *taxes* on imports.

These can be used either as a source of government *revenue*, or as a *protection* device for local industries.

`Did Trump's tariffs benefit American workers and national security?, by Brookings Institute`.

Trade barriers

Export **subsidies** are government *payments* made to domestic businesses to encourage exports.

Dumping occurs when a firm or industry sells products abroad at prices *lower* than its production costs.

- It is seen as "unfair competition."

`Antidumping and Countervailing Duties (AD/CVD) Frequently Asked Questions, by the U.S. Customs and Border Protection`

Trade barriers

Lastly, import **quotas** are *limits* imposed (either voluntarily or through legislation) on the quantity of imports made by a country.

`A Review of U.S. Tariff Rate Quotas for Beef Imports, by the USDA's Foreign Agricultural Service`

Next time: Long Assignment 3 Q&A